SESSION 10. INFANT AND YOUNG CHILD FEEDING IN THE CONTEXT OF HIV

Purpose (slide 2)

The purpose of this session is to review optimal infant and young child feeding practices to improve counseling skills on infant feeding in the context of HIV.

Learning objectives (slide 3)

By the end of the session, students will be able to:

- Describe optimal infant and young child feeding practices.
- Explain infant feeding options for HIV-infected mothers.
- Know key components of counseling women, their partners, and their families on infant feeding in the context of HIV.

Prerequisite knowledge

- Basic nutrition (Session 1)
- Basics of HIV and AIDS (Session 2)
- Infant feeding and prevention of mother-to-child transmission of HIV (PMTCT (Session 6)
- Counseling skills
- Knowledge of lactation management
- Knowledge of human growth and development

Estimated time: 120 minutes

Session guide (slide 4)

Content	Methodology	Activities	Estimated time (minutes)
Introduction	Presentation	Introduce the session and rationale.	5
Comprehensive PMTCT approach and entry points	Participatory presentation	Review the material from Session 6 on the comprehensive PMTCT approach and PMTCT entry points.	10
Infant feeding counseling, informed choice, and AFASS criteria	Participatory presentation	Review the material from Session 6 on infant feeding informed choice and AFASS criteria for replacement feeding.	10
	Discussion	Ask students to compare the infant feeding recommendations in their national guidelines to those of WHO.	10
Infant feeding in the context of HIV: Breastfeeding, replacement feeding, and complementary feeding	Participatory presentation	Review infant feeding practices and discuss related cultural practices.	20
	Discussion	Ask students to discuss enforcement of the Code of Marketing of Breast-Milk Substitutes in their country.	10
	Role-play	Facilitate infant feeding counseling role-plays.	30
Feeding the non-breastfed child 6–24 months old	Participatory presentation	Present optimal replacement feeding of children under 2 years old.	10
Conclusions			10
Review			5
Total time			120

Required materials

- Flipchart paper and stand
- Writing pens
- Blackboard and chalk or whiteboard and markers
- Overhead projector or LCD projector

Materials provided

- PowerPoint 10
- **Handout 6.1. AFASS Criteria for Replacement Feeding**
- **Handout 10.1. Recommended Amounts of Ingredients for Replacement Feeds**
- **Handout 10.2. Algorithm on Infant Feeding Options and Actions**
- **Handout 10.3. Case Studies for Infant Feeding and PMTCT Counseling**

Preparation

1. Review Lecture Notes and PowerPoint 10.
2. Review Session 6. Infant Feeding and PMTCT.
3. Review handouts and exercises and identify questions to facilitate group discussion.
4. Prepare culturally appropriate topics for infant feeding role-plays to help participants apply the knowledge and skills in this session.
5. Modify the names and any other aspects (e.g., foods described) in the case studies in Handout 10.3 as appropriate for the local context.

Suggested reading

LINKAGES Project, 2005. Infant Feeding Options in the HIV Context. Washington, DC: FHI 360.

______. 2004a. Breastfeeding and HIV/AIDS: Frequently Asked Questions. Washington, DC: FHI 360.

______. 2004b. Guidelines for Infant Feeding in Communities Affected by HIV. Washington, DC: FHI 360.

______. 2001. Recommended Practices to Improve Infant Nutrition during the First Six Months. Washington, DC: FHI 360.

LINKAGES and SARA Projects. 2001. Guidelines for Appropriate Complementary Feeding of Breastfed Children 6–24 Months of Age. Washington, DC: FHI 360.

United Nations Children's Fund (UNICEF) and World Health Organization (WHO). 2004. HIV and Infant Feeding: A Question and Answer Guide for Counselors. Geneva. WHO.

WHO and Joint United Nations Program on HIV/AIDS (UNAIDS). 2000. Fact Sheets on HIV/AIDS for Nurses and Midwives. Geneva.

Related terms

AFASS – Criteria for choosing an infant feeding method, which should be available, feasible, affordable, sustainable, and safe

Artificial feeding – Feeding an infant a breastmilk substitute

Breastmilk substitute – Any food marketed or otherwise represented as a partial or total replacement for breastmilk, whether or not it is suitable for that purpose

Cessation of breastfeeding – Stopping breastfeeding

Commercial infant formula – A breastmilk substitute formulated industrially in accordance with applicable Codex Alimentarius standards to satisfy the nutritional requirements of infants up to 6 months old

Complementary food – Any manufactured or locally prepared food suitable as a complement to breastmilk or infant formula when these are no longer sufficient to satisfy the infant's nutritional requirements (previously referred to as weaning food, supplementary foods, or breastmilk substitute)

Cup feeding – Feeding an infant from an open cup (as opposed to a bottle)

Demand feeding – Breastfeeding an infant whenever and as long as the infant wants to nurse

Exclusive breastfeeding – Feeding an infant no food or drink except breastmilk, not even water or breastmilk substitute (with the exception of drops or syrups containing vitamins, mineral supplements, or medicine)

Exclusive replacement feeding – Feeding an infant only a breastmilk substitute (commercial infant formula or home-prepared formula), with no breastmilk

Expressed breastmilk – Breastmilk removed from the breast either manually or with a pump to feed to an infant or child

HIV counseling and testing – Testing, usually antibody testing, for HIV that is voluntary, confidential, based on fully informed consent, and accompanied by pre- and post-test counseling; also known as voluntary counseling and testing (VCT)

HIV infected – Infected with the human immunodeficiency virus

HIV negative – Tested for HIV with a negative result

HIV positive – Tested for HIV with a positive result

Home-prepared formula – Infant formula prepared at home from fresh or processed suitable animal milk diluted with water and with sugar added

Infant – A child from birth through 12 months old

Mixed feeding – Feeding an infant some breastmilk and some other foods (e.g., water, milk, cereal)

Mother-to-child transmission of HIV (MTCT) – Transmission of HIV to an infant from an HIV-positive woman during pregnancy, labor and delivery, or breastfeeding (also called vertical transmission)

Of unknown HIV status – Not tested for HIV or unaware of the result

Replacement feeding – Feeding a child who is not receiving any breastmilk with a diet that provides all the needed nutrients (during the first 6 months, this should be a suitable commercial or home-prepared breastmilk substitute with micronutrient supplements)

Wet nursing – Breastfeeding of an infant by a woman other than the mother who is breastfeeding her own child

Introduction (slide 5)

As noted in Session 6, a comprehensive approach to PMTCT integrates prevention of HIV infection, voluntary counseling and testing, treatment, infant feeding, maternal and child health service delivery, and optimal obstetrical care. This approach needs the support, involvement, and participation of the government, the health sector, international and local organizations, the community, and the private sector to make all these services accessible and affordable. This session focuses on infant and young child feeding in the context of PMTCT.

PMTCT entry points (slide 6)

Pregnancy

All women should be encouraged to stay well nourished and hydrated during pregnancy, but this is especially important for women who have tested positive for HIV because 1) they are at higher risk of malnutrition and 2) maternal nutritional status is independently associated with an increased risk of HIV transmission to the fetus. Counseling during pregnancy should focus on helping women make the decisions about treatment, infant feeding, safe sex, labor and delivery, and family planning.

Post-natal period

Quality counseling and support for infant feeding decisions by HIV-positive women is increasingly important during this period. Whether women opt to breastfeed exclusively or use exclusive replacement feeding in the first months of their children's lives, they face considerable challenges. Women who opt to breastfeed need to understand the importance of exclusive breastfeeding and the dangers posed by mixed feeding. They also need informed counseling on maintaining breast health and preventing problems such as mastitis and cracked nipples. All women can benefit from good counseling on complementary feeding. Women also need to avoid re-infection with HIV for their own health and to reduce the risks of transmitting the virus to their infants during breastfeeding. Women may avoid re-infection by abstaining from sexual intercourse or making sure their partners use condoms.

Infant feeding counseling (slide 7)

Adherence to infant feeding practices that promote PMTCT starts with good counseling. It is challenging to counsel mothers adequately on infant feeding in the context of HIV because they may not know their serostatus. The best infant feeding practices for mothers to follow depend on whether they are HIV negative, HIV positive, or of unknown status.

For women who are HIV negative or of unknown status, exclusive breastfeeding for 6 months is the optimal practice because of the benefits of breastfeeding for improved infant growth and development and reduced incidence of childhood infections. Safe and appropriate complementary feeding and continued breastfeeding for 24 months and beyond are recommended for this group.

For HIV-positive mothers, exclusive breastfeeding should be supported when replacement feeding is not acceptable, feasible, affordable, sustainable, and safe

(AFASS). Mothers of HIV-positive infants are advised to continue breastfeeding to 24 months or beyond.

Informed choice *(*slide 8)

As we learned in Session 6, HIV and breastfeeding policy supports breastfeeding for infants of HIV-negative women or women of unknown status and the right of HIV-positive women who are informed of their serostatus to choose an infant feeding strategy based on full information about the risks and benefits of each alternative.

WHO recommendations on infant feeding for HIV-positive women (slide 9)

The 2006 Consensus Statement on HIV and Infant Feeding of the Inter-agency Task Team (IATT) on Prevention of HIV Infections in Pregnant Women, Mothers and their Infants, convened by WHO, made the following recommendations:

- The most appropriate infant feeding option for an HIV-infected mother should continue to depend on her individual circumstances, including her health status and the local situation, but should take greater consideration of the health services available and the counselling and support she is likely to receive.

- Exclusive breastfeeding is recommended for HIV-infected women for the first 6 months of life unless replacement feeding is acceptable, feasible, affordable, sustainable, and safe for them and their infants before that time.

- When replacement feeding is acceptable, feasible, affordable, sustainable, and safe, avoidance of all breastfeeding by HIV-infected women is recommended.

- At 6 months, if replacement feeding is still not acceptable, feasible, affordable, sustainable, and safe, continuation of breastfeeding with additional complementary foods is recommended, while the mother and baby continue to be regularly assessed. All breastfeeding should stop once a nutritionally adequate and safe diet without breastmilk can be provided.

- Whatever the feeding decision, health services should follow-up all HIV-exposed infants, and continue to offer infant feeding counselling and support, particularly at key points when feeding decisions may be reconsidered, such as the time of early infant diagnosis and at six months of age.

- Breastfeeding mothers of infants and young children who are known to be HIV-infected should be strongly encouraged to continue breastfeeding.

- Governments and other stakeholders should re-vitalize breastfeeding protection, promotion, and support in the general population. They

should also actively support HIV-infected mothers who choose to exclusively breastfeed, and take measures to make replacement feeding safer for HIV-infected women who choose that option.

- National programmes should provide all HIV-exposed infants and their mothers with a full package of child survival and reproductive health interventions (WHO 2005b, 2006) with effective linkages to HIV prevention, treatment and care services. In addition, health services should make special efforts to support primary prevention for women who test negative in antenatal and delivery settings, with particular attention to the breastfeeding period.

- Governments should ensure that the package of interventions referenced above, as well as the conditions described in current guidance (WHO 2005a), are available before any distribution of free commercial infant formula is considered.

- Governments and donors should greatly increase their commitment and resources for implementation of the Global Strategy for Infant and Young Child Feeding and the UN HIV and Infant Feeding Framework for Priority Action in order to effectively prevent postnatal HIV infections, improve HIV-free survival, and achieve relevant UNGASS goals.

Exercise 1. Discussion

Ask students whether their country has national guidelines on PMTCT and infant feeding or on nutrition care and support of PLHIV. If so, ask them to find the national recommendations for infant feeding for HIV-positive women.

Once the students have shared this recommendation, ask them to compare the recommendations in the national guidelines with the WHO recommendations.

Determining whether replacement feeding is AFASS (slide 10)

Ask students to take turns reading aloud **Handout 6.1. AFASS Criteria for Replacement Feeding**.

Explain that to determine whether replacement feeding is AFASS, health service providers should ask the questions below. The answers will determine whether HIV-positive mothers should practice exclusive breastfeeding or exclusive replacement feeding, given their situation and resources.

- Will you have a problem with your family or friends if you do NOT breastfeed?
- Do you have access to clean, safe water?
- Are you able to keep utensils clean?
- Can you use a cup and spoon to feed your infant?

- Can you buy enough infant formula or animal milk?
- Can you prepare feeds for the child every 3 hours, both day and night?

Box 1 shows when "yes" and "no" answers determinate whether replacement feeding is AFASS or a woman should be counseled to breastfeed exclusively.

Box 1. AFASS Criteria for Replacement Feeding

Acceptable: The mother sees no barrier to choosing replacement feeding for cultural or social reasons or for fear of stigma and discrimination.

Feasible: The mother (or family) has adequate time, knowledge, skills, resources, and support to prepare breastmilk substitutes correctly and feed the infant 8–12 times in 24 hours.

Affordable: The mother and family, with available community and/or health system support, can pay for the purchase/production, preparation, storage, and use of replacement feeds without compromising the health and nutrition of the family. Costs include ingredients/commodities, fuel, clean water, and medical expenses that may result from unsafe preparation and feeding practices.

Sustainable: There is a continuous, uninterrupted supply of replacement food and a dependable system for distributing all ingredients and products needed to safely practice replacement feeding for as long as needed.

Safe: Replacement foods are correctly and hygienically stored and prepared and fed with clean hands using clean cups and utensils, not bottles or teats.

Source: Adapted from WHO 2003.

Algorithm for infant feeding options and actions (slide 11)

Refer students to **Handout 10.2. Algorithm on Infant Feeding Actions and Options** and ask them to review the handout before proceeding.

HIV-positive pregnant women and mothers must be counseled on the risks of MTCT and the available infant feeding options. First, health service providers must help the women determine whether replacement feeding is AFASS or not. Once this determination is made, they should provide additional information to the mothers on their options. Health service providers must also be aware of the correct counseling messages for each infant feeding option. Handout 10.4 shows an algorithm that nurses can use to o guide health service providers on the type of additional information that needs to be provided to these women.

For example, an HIV-positive woman for whom replacement feeding is not AFASS needs to consider the exclusive breastfeeding options. These options include exclusive breastfeeding, feeding the infant heat-treated expressed breastmilk, or using a wet nurse. Counseling messages need to be tailored to support each of these options. When replacement feeding is AFASS, exclusive replacement feeding options include feeding the infant commercial infant formula or home-modified animal milk. In each of these cases, the counseling information and focus will be slightly different. Information on each of these infant feeding options is covered in the next few slides.

Exclusive breastfeeding (slide 12)

Nurses and midwives should encourage women who are HIV negative or do not know their status should to breastfeed exclusively. Women who are HIV positive should breastfeed exclusively if other feeding options are not AFASS.

Mothers who opt to breastfeed exclusively should follow the practices listed below to optimize their breastfeeding and avoid potential risks and challenges (LINKAGES 2005).

- **Feed the infant only breastmilk for the first 6 months.** Many positive factors associated with exclusive breastfeeding. It meets all of an infant's nutritional needs; results in fewer diarrheal, respiratory, and ear infections; and delays the return of fertility to help families space births.

- **Initiate breastfeeding within 1 hour of birth.** Breastfeeding within 1 hour of birth allows optimal stimulation of breastmilk production, helps expel the placenta faster, fosters bonding between infants and mothers, and gives infants extra protection against disease by providing colostrum.

- **Help the infant attach well to the breast.** Good attachment is important to allow the infant to suckle effectively and stimulate breastmilk production. Poor attachment may lead to sore breasts, cracked nipples, and mastitis, which can increase the risk of HIV transmission to the infant.

- **Breastfeed frequently.** Mothers should breastfeed on demand. Infants usually want to feed 8–12 times in 24 hours.

- **Continue to breastfeed when the infant is sick.** Mothers should continue to breastfeed when their infants are sick to help the infants recover faster. Breastmilk will replace the water and nutrients lost when an infant has diarrhea.

- **Express breastmilk if the infant is not directly breastfed,** If a mother is committed to exclusive breastfeeding, she must have a plan for providing her infant with her breastmilk when she is away for long periods, for example, at work, and cannot breastfeed her infant. Women can express milk into clean containers that can be stored for 8 hours in a cool place. Caretakers should feed the infants the expressed milk from a cup and not a bottle, which can become easily contaminated.

Exclusive breastfeeding for HIV-positive mothers (slide 13)

HIV-positive women who opt to breastfeed exclusively should follow the practices listed above as well as the following (LINKAGES 2005):

- **If breast problems occur, stop breastfeeding from the infected breast and seek treatment.** Mothers who have cracked nipples, mastitis, or yeast infection should either stop feeding from the infected breast or express the milk from this breast and heat-treat it before feeding.

- **Seek medical care when ill.** Mothers who develop symptoms of full-blown AIDS should seek care and consider stopping breastfeeding. Maternal viral load is higher in mothers with advanced disease, including the viral load in breastmilk.

- **Check the infant's mouth for sores and seek treatment if necessary**. Studies show that disruption of the epithelial integrity of the mucous membranes of an infant's mouth increases the risk of HIV transmission (Ekpini et al 1997).

- **Transition to replacement feeding when it becomes AFASS.** Little has been written about how to achieve early cessation of breastfeeding to minimize discomfort for mothers and infants. However, counselors should tell mothers to reduce the frequency of breastfeeding gradually (to once every 4–6 hours) and then stop breastfeeding over a period of a few days to a few weeks. During this period, mothers should teach their infants to drink feed heat-treated expressed milk from a cup in between feeds and should not breastfeed their infants to sleep.

Other infant feeding options for HIV-positive mothers (slide 14)

WHO and UNICEF recommend that HIV-infected mothers avoid breastfeeding when replacement feeding is AFASS. However, many mothers in sub-Saharan Africa cannot easily meet these conditions. The safety of infant feeding can be improved with adequate support. More work is needed to ensure that health systems and communities can provide this support. Frequently HIV-positive women who opt to use replacement feeding resort to occasional breastfeeding in public in order to hide their status from the community. This results in mixed feeding, which puts infants at a higher risk of becoming infected with HIV than exclusive breastfeeding does.

When preparing replacement feeds, mothers must be able to ensure hygienic conditions. This includes access to clean water and the ability to keep all necessary utensils clean. A steady supply of replacement foods is needed to meet all the infant's nutritional needs. Breaks or ruptures in this supply can endanger the infant's health.

Health service providers who counsel mothers on infant feeding and replacement feeding need to be aware of the International Code of Marketing of Breast-Milk Substitutes. The Code protects optimal breastfeeding for most infants but also protects artificially fed infants by ensuring that all products are clearly labeled for proper preparation and that the choice of replacement feeding is based on non-commercial information. Countries can buy infant formula and provide it free or at subsidized cost. Care must be taken to ensure this formula is used exclusively, not mixed with breastfeeding. Safe preparation and use instructions on labels should be in local languages whenever possible.

Exercise 2. Discussion

Ask students to discuss whether the Code of Marketing of Breast-Milk Substitutes is enforced in their country and if so, how.

This session will discuss the following infant feeding options:

- Expressed, heat-treated breastmilk
- Wet nursing by HIV-negative women
- Commercial infant formula
- Home-modified animal milk

Expressed, heat-treated breastmilk (slide 15)

Methods are being tested for treating expressed breastmilk to destroy HIV. These methods include pasteurizing the milk (heating it to 62.5 degrees Celsius for 30 minutes) or boiling it briefly. The treated breastmilk should be cooled immediately in the refrigerator or placed in a container in cool water. Once milk is heat treated, it should be used within an hour. Although these methods destroy HIV, they may be difficult to sustain. Heat-treated milk retains nutritional benefits but loses some anti-infective factors. Ideally, infants should be given the treated breastmilk from a cup. This option is most feasible in a hospital setting for sick and low birth weight infants.

Several studies have shown that expressing breastmilk and letting it stand for a half-hour inactivates HIV (Orloff et al 1993; Isaacs and Thormar 1990; Newburg et al 1992). During this time the naturally occurring anti-HIV factors in breastmilk are allowed to take effect.

Again, this option may not be feasible or sustainable. The mother needs to have time and be well enough to express and heat-treat her milk and then feed her child. She also needs to be able to afford the fuel to heat the breastmilk.

Wet nursing by an HIV-negative woman (slide 16)

Wet nursing means breastfeeding by a woman who is not the infant's mother. Mothers or caregivers must make sure that the women who offer to wet nurse are HIV negative (through testing) and receive primary HIV prevention counseling. Wet nurses need to follow all of the optimal breastfeeding practices that the mother normally would followed, such as ensuring that the infant is well attached and feeding frequently and on demand, including during the night. Wet nurses also should be able to access health services to treat problems such as mastitis and cracked and bleeding nipples.

Commercial infant formula (slide 17)

Commercial infant formula is made from modified cow milk or soy protein but lacks the long-chain essential fatty acids that are present in breastmilk. To feed an infant formula, the mother or caregiver needs access to clean water and utensils, fuel, skills, and time to prepare the feeds accurately and hygienically. Cup feeding is more hygienic than bottle feeding.

The average quantity needed to feed an infant for 6 months is 20 kilograms of powdered formula (40 tins containing 500 grams each) (LINKAGES 2005). Before a mother makes the decision to use infant formula, she needs to make sure she will have access to a steady supply of the product. Because stocks of formula from health facilities are frequently interrupted, mothers who depend on this source for formula put their infants at risk of undernutrition.

Mothers must be able to read and understand labels on the formula tins or have access to people who can read the labels to them.

It is important for HIV-positive mothers to understand that they should not mix breastfeeding and feeding commercial infant formula. Mixed feeding puts an infant at a significantly higher risk of infection with HIV. Mothers need adequate support from the health system and the community to feed their infants correctly with commercial infant formula.

Home-modified animal milk (slide 18)

Modified animal milks can be used for replacement feeding when commercial infant formula isn't available or is too expensive. However, animal milk can be difficult for infants to digest and will not provide them with all of the nutrients found in breastmilk. Animal milks must be modified before it can be given to an infant. Unmodified cow milk increases the risk of dehydration and stress on the infant's kidneys because of its high concentration of sodium, phosphorous, and other salts. As with infant formula, a mother must be able to prepare the animal milk in hygienic conditions that include access to clean water, and the household must have access to a steady supply of the milk. An infant will need 15 liters of milk per month for the first 6 months.

Animal milk (e.g., cow, goat, buffalo, or sheep). To modify cow milk, mix 100 milliliters of cow milk, 50 milliliters of boiled water, and 10 grams (2 teaspoons) of sugar. Because home-prepared formulas usually lack enough micronutrients such as iron, zinc, folate, and vitamins A and C, micronutrient supplements should be added where available.

Powdered full-cream milk and evaporated milk. Full-cream milk needs the addition of boiled water, as described on the package. Add 50 percent more water and 10 more grams of sugar for each 150 milliliters of feed. Again, add micronutrient supplements when available.

Skimmed milk, sweetened condensed milk, cereal feeds, juices, and teas are not suitable for replacement feeds either before 6 months or after 6 months.

Modifying animal milk at home, like using commercial infant formula, requires access to clean water and utensils, fuel, skills, and time to prepare the feeds accurately and hygienically. Cup feeding is more hygienic than bottle feeding. Support from the health system and community is essential for the success of this method.

Breastfeeding cessation (slide 19)

Women who exclusively breastfeed and decide to stop breastfeeding in the first few months of their infant's lives need help with breastfeeding cessation. They should be counseled on the following steps when making the transition from exclusive breastfeeding to replacement feeding:

- Gradually reduce the frequency of breastfeeding and increase the intervals between breastfeeds.
- One month before full weaning, cut out one or more night feeds.
- Increase the time between breastfeeds to once every 4–6 hours

- Teach the infant to drink breastmilk from a cup.
- Cup feed expressed milk in between feeds.
- Try not to breastfeed the infant to sleep; lay the infant down or pat, calm, carry, or rock the infant to sleep.

Feeding the non-breastfed child 6–24 months old (slide 20)

Replacement feeding should carefully follow WHO guidelines for feeding non-breastfed children 6–24 months old (WHO 2004). Mothers should increase food quantity, consistency, and variety as their infants get older, while giving frequent replacement feeds. Feeding frequency should also increase as the infant gets older, using a combination of meals and snacks.

The appropriate number of feeds for an average, healthy, non-breastfed infant 6–24 months old depends on the energy density and amounts of the foods they are eating. In general, infants should eat four to five meals and one or two snacks a day, as desired. "Meals" include milk-only feeds, other foods, and combinations of milk feeds and other foods. "Snacks" are foods eaten between meals, which are usually self-fed, convenient, and easy to prepare. The energy provided by these meals and snacks should increase from approximately 600 kilocalories per day for infants 6–8 months old, 700 kilocalories per day for infants 9–11 month olds, and 900 kilocalories per day for infants 12–24 months old (WHO 2005a). If infants regularly eat adequate amounts of other animal-source foods, they need approximately 200–400 milliliters of milk per day; otherwise, they need approximately 300–500 milliliters per day.

A diverse diet is important for a non-breastfed infant to improve macronutrient and micronutrient intake. The mother or caregiver should practice responsive feeding, frequent and responsive feeding during and after illness, and good hygiene and proper food handling (LINKAGES 2001). Session 12 provides more information on nutrition care and support for children with HIV, including care of severely malnourished children.

Exercise 3. Role-play

Divide the students into pairs. Refer students to **Handout 10.3. Case Studies for Infant Feeding and PMTCT Counseling**. Introduce the case studies with the following information: One out of every five people in Zambia between the ages of 15 and 49 is infected with HIV. Approximately 25,000 Zambian infants will become infected with HIV each year in utero, during labor and delivery, or through breastfeeding. Seroprevalence is 25.6 percent in Kabwe, 41 percent in Livingston, and 28 percent in Ndola.

Assign each pair one of the case studies. Explain that one student should role-play a health worker or counselor, and the other student should role-play the client. The questions provided are intended for guidance. Encourage students to ask additional questions to enhance the counseling session. Give a time limit of 15 minutes for the role-play.

After 15 minutes, ask the entire class to discuss each case study from the points of view of the health worker and the client.

Complementary feeding practices (slide 21)

Complementary feeding is feeding infants foods in addition to breastmilk or formula. The second half of an infant's first year is an especially vulnerable time because he/she is learning to eat and must be fed soft foods frequently and patiently. If nutritional intake is inadequate, the consequences persist throughout life.

- Introduce complementary foods at 6 months.
- Begin complementary feeding by adding local foods to staple foods.
- As the child gets older, increase the frequency of feeding and the quantity of food so that complementary foods meet more of the child's energy requirements.
- Make feeding young children a priority to ensure that they get enough food. One way to know if children are getting enough food is to put their portions in separate bowls and to help them eat (responsive feeding).
- Give young children small feeds frequently throughout the day because they have very small stomachs.
- Interact with the child during feeding to help him/her ingest the food and stimulate verbal and intellectual development. Talk to the child and make eye contact. Feeding times are periods of learning and love.
- Experiment with food combinations, tastes, textures, and ways to encourage children who refuse many foods.
- Minimize distractions during meals if the child loses interest easily.
- Be patient and encouraging—do not force the child to eat.
- Increase the thickness and variety of the food as the child gets older.
- Practice good hygiene and safe food preparation.
  - Feed liquids from a small cup or bowl. Bottles are difficult to keep clean, and contaminated bottles can cause diarrhea.
  - Before feeding the child, wash your hands and the child's hands with soap and water.
  - Use clean utensils and bowls or dishes to avoid introducing dirt and germs that might cause diarrhea and other infections.
  - Serve food immediately after preparation.

Feeding the sick child (slide 22)

The loss of body stores of micronutrients and energy, low absorption of food, poor appetite, and low nutritional intake associated with HIV put children at an increased risk of undernutrition. Mothers or caregivers should know that it can be harmful to a child who is feeling sick or who has diarrhea to withhold food. The following practices can prevent undernutrition and recurring infection in sick and malnourished children:

- Increase breastfeeding or replacement AND complementary feeding *during* and *after* illness. Continued breastfeeding should shorten the duration of diarrhea and help prevent dehydration and growth faltering. Frequent breastfeeding will reduce the need for oral rehydration solution (ORS) and is often preferred by sick infants to ORS.
- Feed the child more fluids, including breastmilk, *during* and *after* illness.
- For diarrhea, give the child zinc supplementation for 10–14 days, according to the WHO protocol. Provide low osmolarity ORS to children > 6 months old.

- Seek medical help if the illness continues or child is unable to eat after several days.

Conclusions (slide 23)

Because HIV can be transmitted from mother to child during pregnancy, labor and delivery, and breastfeeding, a comprehensive package of services is needed to prevent transmission. An HIV-positive mother must weigh the benefits and risks of breastfeeding before making an infant feeding choice. Alternatives to breastfeeding must be AFASS. Good counseling and support are critical to help women select the infant feeding options that are best for their situation and that follow optimal practices. Stigmatization and coercion can also play a role in how mothers choose to feed their infants.

References

LINKAGES Project, 2005. Infant Feeding Options in the HIV Context. Washington, DC: FHI 360.

______. 2004a. Breastfeeding and HIV/AIDS: Frequently Asked Questions. Washington, DC: FHI 360.

______. 2004b. Guidelines for Infant Feeding in Communities Affected by HIV. Washington, DC: FHI 360.

______. 2001. Recommended Practices to Improve Infant Nutrition during the First Six Months. Washington, DC: FHI 360.

LINKAGES and SARA Projects. 2001. Guidelines for Appropriate Complementary Feeding of Breastfed Children 6–24 Months of Age. Washington, DC: FHI 360.

Piwoz, E., J. Ross, and J. Humphrey. 2003. HIV Transmission during Breastfeeding: Knowledge, Gaps, and Challenges for the Future. In: Pickering, L., et al, eds., Protecting Infants through Human Milk: Advancing the Scientific Evidence (Advance in Experimental Medicine and Biology. New York: Kluwer Academic/Plenum Publishers.

Piwoz, E., S. Huffman, D. Lusk, E. Zehner, and C. O'Gara. 2001. Issues, Risks, and Challenges of Early Breastfeeding Cessation to Reduce Postnatal Transmission of HIV in Africa. Washington, DC: SARA Project, FHI 360.

UNICEF and WHO. 2004. HIV and Infant Feeding: A Question and Answer Guide for Counselors. Geneva. WHO.

WHO. 2006. Antiretroviral Drugs for Treating Pregnant Women and Preventing HIV Infection in Infants: Towards Universal Access. Recommendations for a Public Health Approach. Geneva.

______. 2005a. HIV and Infant Feeding Counseling Tools: Reference Guide. Geneva. Available at http://www.who.int/child-adolescent-health/new_ publications/ nutrition/hiv_if_ct/isbn_92_4_159301_6.pdf.

______. 2005b. The World Health Report: Make Every Mother and Child Count. Geneva.

______. 2004. Feeding the Non-breastfed Child 2–24 Months of Age. Geneva.

______. 2003. HIV and Infant Feeding: A Guide for Health-Care Managers and Supervisors. Geneva.

______. 2001. New Data on PMTCT of HIV and Their Policy Implications: Conclusions and Recommendations. Geneva.

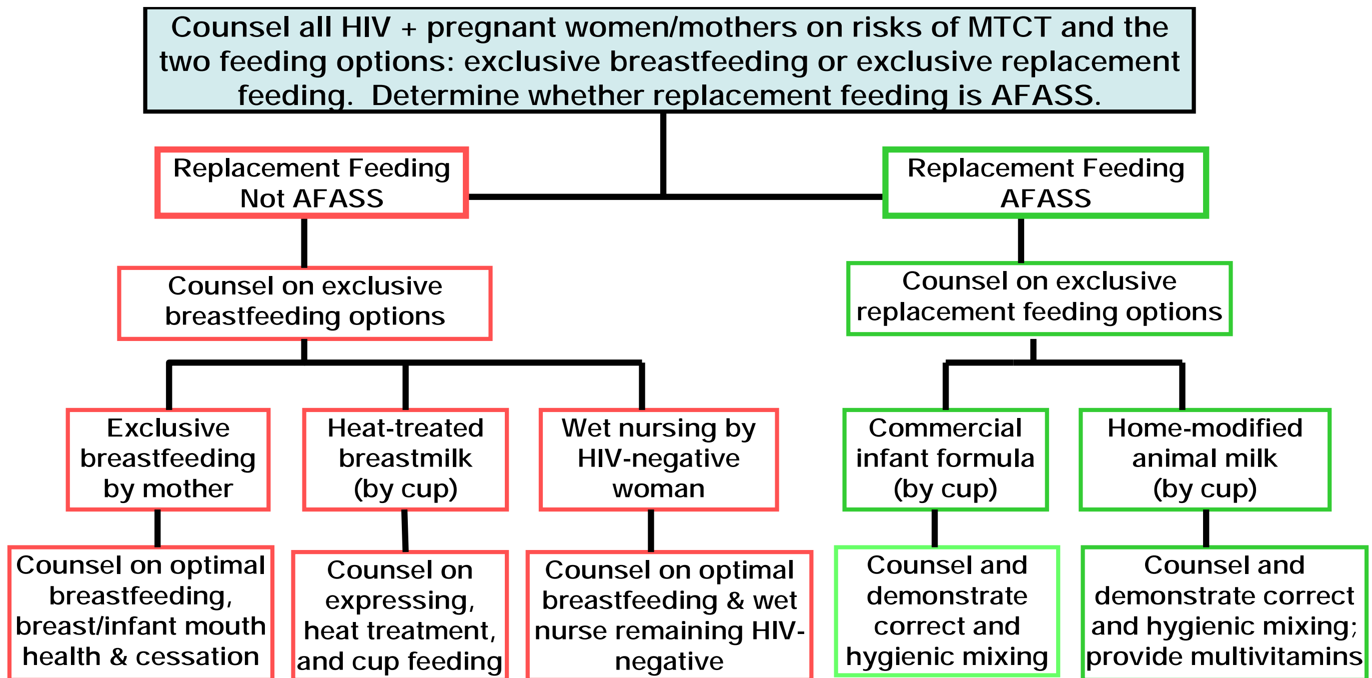
WHO and UNAIDS. 2000. Fact Sheets on HIV/AIDS for Nurses and Midwives. Geneva.

Handout 10.1. Recommended Amounts of Ingredients for Replacement Feeds

Age (months)	Number of feeds and daily milk requirements	Amount of cow (fresh or UHT), goat, or camel milk (per feeding)	Amount of evaporated milk (per feeding)	Amount of powdered full-cream milk (per feeding	Amount of commercial formula (per month)
0–< 1	8 feeds/day x 60 ml/feed Total: 480 ml/day	40 ml milk + 20 ml water + 4 g sugar	16 ml milk + 44 ml water + 4 g sugar	5 g milk + 60 ml water + 4 g sugar	4 x 500-g tins
1–< 2	7 feeds/day x 90 ml/feed Total: 630 ml/day	60 ml milk + 30 ml water + 6 g sugar	24 ml milk + 66 ml water + 6 g sugar	7.5 g milk + 90 ml water + 6 g sugar	6 x 500-g tins
2–< 3	6 feeds/day x 120 ml/feed Total: 720 ml/day	80 ml milk + 40 ml water + 8 g sugar	32 ml milk +88 ml water + 8 g sugar	10 g milk + 120 ml water + 8 g sugar	7 x 500-g tins
3–< 4	6 feeds/day x 120 ml/feed Total: 720 ml/day	80 ml milk + 40 ml water + 8 g sugar	32 ml milk + 88 ml water + 8 g sugar	10 g milk + 120 ml water + 8 g sugar	7 x 500-g tins
4–< 5	6 feeds/day x 150 ml/feed Total: 900 ml/day	100 ml milk + 50 ml water + 10 g sugar	40 ml milk +110 ml water + 10 g sugar	12.5 g milk + 150 ml water + 10 g sugar	8 x 500-g tins
5–< 6	6 feeds/day x 150 ml/feed Total: 900 l/day	100 ml milk + 0 ml water + 10 g sugar	40 ml milk +110 ml water + 10 g sugar	12.5 g milk + 50 ml water + 10 g sugar	8 x 500-g tins

Source: LINKAGES Project 2005.

Handout 10.2. Algorithm on Infant Feeding Options and Actions



Handout 10.3. Case Studies for Infant Feeding and PMTCT Counseling

These case studies can be used to practice counseling on infant feeding and PMTCT.

Case study 1

Regina, a teacher, comes into the clinic to discuss infant feeding options. She tested HIV positive earlier in her pregnancy. She is now 8 months pregnant. Regina has read and heard that feeding her infant formula instead of breastmilk will eliminate the risk of her transmitting HIV during breastfeeding. She tells you that she has just enough income to cover her basic needs.

Sample questions

- What additional information does Regina need to make an informed infant feeding choice and also manage her nutritional needs?
- Can she afford to replacement feed?
- Does she have community or household support for her infant feeding decision?
- How does she feel about the issue?
- What is her partner's HIV status?
- Has she gained adequate gestational weight?

Case study 2

A young couple, John and Jane, come to the clinic. You have already been seeing Jane, who is HIV positive. She is 6 months pregnant with her first child. John's test results showed that he is HIV negative. Jane knows about her HIV status but hasn't told John. Both John and Jane are unemployed. Jane has not gained adequate gestational weight and is complaining of diarrhea and nausea. She is not taking any ARVs.

Sample questions

- How does this information help you assess Jane's nutritional status? What additional questions might be appropriate? (e.g., What have you eaten today? What did you eat yesterday? What kind of food did you eat the past week?)
- What interventions would you propose to Jane?
- What issues should you explore with Jane to guide her on infant feeding once her child is born? What open-ended questions could you ask to find out what infant feeding options are available to her?
- What other help do John and Jane need with regards to their HIV status? What advice and support do John and Jane need from their community and from you as their counselor?

Case study 3

Gertrude is about to give birth. She has visited the clinic for other antenatal services but declined to be tested for HIV. Her husband recently died, and there are rumors that he died of AIDS. Gertrude has four children, two of them of school age. She and the children recently moved back home with her mother. Gertrude tells you she is anxious about how she is going to support her household. She does not have a formal job but

can grow some vegetables to sell in the market. She has gained adequate gestational weight. She says that she has breastfed all her children, but not exclusively, because she introduced them to other foods in the first or second months.

Sample questions

- What are the nutrition care and support issues for Gertrude, her unborn child, and her household?
- What other prevention messages would you give her?
- What infant feeding messages are appropriate in her case?

Case study 4

Harriet is 3 months pregnant and has tested HIV positive. She is a fairly successful entrepreneur who has built a small business selling beer in the city. She has two other children who have been healthy. Her partner has not been tested, and she has not yet told him she is HIV positive. She seems to have enough resources to afford some form of replacement feeding. She has breastfed her other children. Harriet has heard that some herbal products (garlic supplements) and micronutrient supplements (vitamins A and C) can help with HIV infection. She asks if you would recommend these products. She also asks about taking ARVs.

- How would you respond to Harriet's question about the supplements? What information should you give her?
- What other supplements would you recommend, and what pros and cons would you tell her about each supplement?
- What other information do you need from Harriet to assess her replacement feeding options?
- What advice would you her give about ARVs?

Session 10:
Infant and Young Child Feeding in the Context of HIV

Purpose

To review optimal infant and young child feeding practices to improve counseling skills on infant feeding in the context of HIV

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Learning Objectives

- Describe optimal infant and young child feeding practices.
- Explain infant feeding options for HIV-infected mothers.
- Know key components of counseling women, their partners, and their families on infant feeding in the context of HIV.

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Session Outline

- Overview of a comprehensive PMTCT approach and entry points
- Review of informed choice and AFASS criteria
- Description of infant feeding practices

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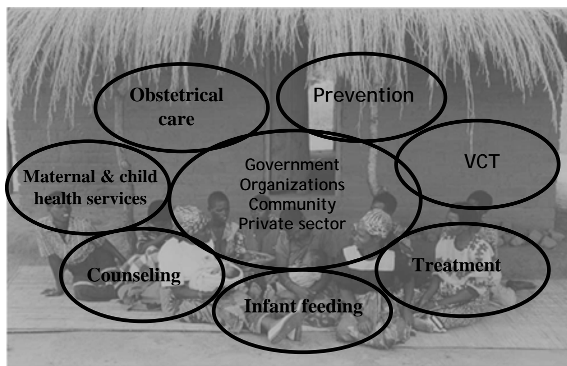
Comprehensive PMTCT Approach



PMTCT Entry Points for Infant Feeding

Pregnancy	Post-natal period
Counsel on infant feeding options and self-care including nutrition and preparing for the future.	Counsel on and support infant feeding options. Prevent and treat breastfeeding problems. Treat infant thrush and oral lesions. Counsel on complementary feeding and breastfeeding cessation. Counsel on preventing re-infection.

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Infant Feeding Counseling

HIV negative	Unknown status	HIV positive
Exclusive breastfeeding	Exclusive breastfeeding	Exclusive breastfeeding or exclusive replacement feeding
		Early cessation
		Treatment of breastfeeding problems
Complementary feeding	Complementary feeding	Complementary feeding
Prevention	Prevention	Prevention
		ART

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Informed Choice

HIV and breastfeeding policy supports breastfeeding for infants of women without HIV infection or of unknown status and the right of a woman infected with HIV who is informed of her serostatus to choose an infant feeding strategy based on full information about the risks and benefits of each alternative.

UNAIDS/WHO/UNICEF

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WHO Recommendations on Infant Feeding for HIV-Positive Women

HIV-negative or of unknown HIV status

- Exclusive breastfeeding for 6 months and continued breastfeeding for 2 years or beyond

HIV-positive women

- Most appropriate infant feeding option for HIV-exposed infant depends on individual circumstances, including consideration of health services, counselling and support

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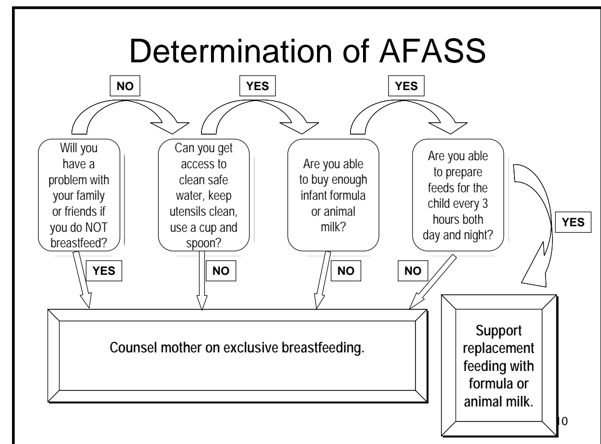
Determination of AFASS



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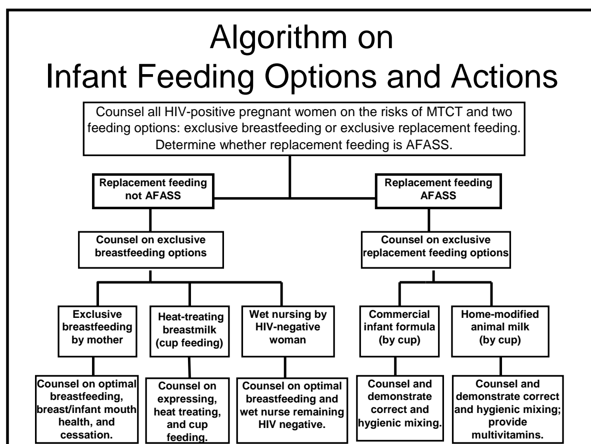
Algorithm on Infant Feeding Options and Actions



Exclusive Breastfeeding Practices

- Give the infant only breastmilk.
- Initiate breastfeeding within 1 hour of birth.
- Make sure the infant is attached and positioned correctly at the breast.
- Breastfeed frequently.
- Continue breastfeeding when the mother or infant is sick.
- Express breastmilk if not feeding the infant directly.

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Additional Breastfeeding Practices for HIV-Positive Mothers

- Stop breastfeeding from the infected breast and seek treatment.
- Seek medical care when ill.
- Check the infant's mouth for sores and seek treatment if necessary.
- Transition to replacement feeding when it becomes AFASS.

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Other Infant Feeding Options for HIV-Positive Mothers

- Expressing and heat-treating breastmilk.
- Wet nursing by an HIV-negative woman
- Feeding commercial infant formula
- Feeding home-modified animal milk

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Expressing and Heat-Treating Breastmilk

- The breastmilk is heated to 62.5°C for 30 minutes or boiled briefly and cooled immediately.
- Heat destroys HIV.
- The milk retains some nutritional benefits but loses anti-infective factors.
- The milk should be stored in a cool place.
- The milk should be fed to the infant in a cup, not a bottle.
- This is time consuming and difficult to maintain.

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Wet nursing by an HIV-Negative Woman

- The wet nurse must be confirmed HIV negative and understand the importance of safe sex.
- The wet nurse must follow optimal breastfeeding practices.
- The wet nurse must be able to feed the infant frequently, including at night.

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Commercial Infant Formula

- Requires support from the health system and community
- Requires clean water, sterilized utensils, and correct hand washing
- Requires a steady supply of commercial or home-prepared formula—20 kg over 6 months
- Requires correct mixing

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Home-Modified Animal Milk

- Requires support from the health system and community
- Requires clean water, sterilized utensils, and correct hand washing
- Requires a reliable and affordable supply of animal milk
- Requires correct mixing with clean water, boiling, adding sugar, etc.

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Breastfeeding Cessation

- Gradually reduce the frequency of breastfeeding.
- Increase breastfeeding intervals to every 4–6 hours.
- Gradually cut out one or more night feeds.
- Teach the infant to drink expressed breastmilk from a cup.
- Cup feed expressed breastmilk in between breastfeeds.
- Try not to breastfeed the infant to sleep.

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Feeding the Non-breastfed Child 6−24 Months Old

Age	Kcal	Feeding frequency
6−8 months	600/day	Meals: 4−5 times a day Snacks: 1−2 times a day
9−11 months	700/day	Meals: 4−5 times a day Snacks: 1−2 times a day
12−23 months	900/day	Meals: 4−5 times a day Snacks: 1−2 times a day

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Complementary Feeding

- Feed the child in a separate bowl.
- Interact with the child during feeding (responsive feeding).
- Practice good hygiene and safe food preparation.

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Feeding the Sick Child

- Increase breastfeeding or replacement AND complementary feeding during and after illness
- Increase fluids (including breastmilk) during and after illness.
- For diarrhea, give zinc supplementation for 10−14 days according to WHO protocol.
- For diarrhea, give provide low osmolarity ORS to children over 6 months old.
- Seek help if illness persists or if the child is unable to eat after several days.

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Conclusions

- HIV-positive women must weigh the benefits and risks of breastfeeding before making infant feeding choices.
- Alternatives to breastfeeding must be AFASS.
- Women need good counseling and support to select the best feeding options and follow optimal practices.

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